

bottom and an ITO electrode on the top ..." (emphasis added). The rejection should be withdrawn.

The Examiner has rejected claims 10, 12, 13, 16-18, 20, 22 and 23 under Section 102(b) or in the alternative "under 35 U.S.C. 103(a) as obvious over Mitchell et al. ... in light of Handbook of Chemistry and Physics" Presumably, the Section 102(b) rejection is over Mitchell et al. The Examiner states that: "The reference discloses in the sole Figure the steps of providing and generating as claimed." This is not correct.

The claims in the application are to a process which is **not electrophoretic deposition**,¹ wherein, upon application of an AC voltage to a substrate (with or without application of a DC voltage or bias), a liquid medium (including suspended polarizable particles) is moved substantially **parallel** to the direction of the electrode surface (normal to the direction of the electric field). The particles can be accumulated at particular regions of the electrode surface, by either patterning of the electrode or by illumination patterning. This is described in the Summary of the Invention, page 9, lines 5-11, as follows:

Sets of colloidal particles may be captured, and arrays may be formed in designated areas on the electrode surface (Figs. 1a, 1b and Figs. 2a-d). Particles, and the arrays they form in response to the applied field, may be channeled along conduits of any configuration that are either embedded in the Si/SiO_x interface by oxide patterning or delineated by an external pattern of illumination. This channeling (Figs. 1c, 1d, 1e, Figs. 3c, 3d), in a direction normal to that of the applied electric field, relies on lateral gradients in the impedance of the EIS structure and hence in the field-induced current.

However, the particles are not electrophoretically transported, nor are they electrophoretically (or otherwise permanently) deposited on the electrode surface. See, e.g., page 29, lines 6-8: "This method takes advantage of the fact that, in contrast to all prior art methods, the array represents a temporary configuration of particles that is maintained by the applied electric field and may be rearranged or disassembled at will."

As the Examiner notes, Mitchell et al. is directed to electrophoretically depositing diamond particles on a semiconductor substrate. In Mitchell et al., two electrodes are oppositely charged, and an electrolyte is between the electrodes, and: "Diamond particles

¹ The fact that the method claimed is not electrophoretic deposition is emphasized in the specification, page 3, last paragraph of page 19, and first paragraph of page 20, where it is noted that the electrophoretic deposition process was well known at the time the application was filed.

suspended in a liquid electrolyte are subjected to a directional field and caused to migrate and deposit on a substrate in contact with a selected electrode." See Mitchell et al., "Statement of the Invention." Accordingly, the electrophoretic deposition takes place when the particles are attracted to the electrode surface; i.e., the particles move from the liquid electrolyte normal (perpendicular) to the surface and deposit on the electrode surface. In contrast, independent claim 41 reads as follows (in pertinent part):

wherein the second electrode comprises either:

(a) a light-sensitive electrode capable of controlling the movement of the particles and/or the liquid medium in a direction substantially parallel to the electrode surface when an electric field is generated within said interface and the light-sensitive electrode is illuminated with a predetermined light pattern, resulting in formation of an ordered array of particles in at least one designated area of the surface of the second electrode, said designated area being defined by the illumination pattern; or

(b) the second electrode is physically or chemically patterned to distribute an electric field in a predetermined manner, when an electric field is generated within said interface, in order to control the movement of the particles and/or the liquid medium in a direction substantially parallel to the electrode surface, said patterning affecting the local distribution of the electric field at the interface, such that the generation of the electric field results in formation of an ordered array of particles in at least one designated area of the surface of the second electrode.

There clearly is no disclosure or suggestion in Mitchell et al. of controlling the movement of particles in a direction parallel to the electrode surface, either with an illumination pattern or with physical or chemical patterning. Moreover, irrespective of whether the electrode in Mitchell et al. "inherently possesses the property of a light-sensitive electrode as claimed," it is not "capable of controlling the movement of the particles and/or the liquid medium in a direction parallel to the electrode surface ..." as in claim 26. Accordingly, the independent claim is not anticipated, and its subject matter is nonobvious over the cited references. As a result, the remaining rejections of all the dependent claims (11-25 and new claim 42) are also nonobvious.

A terminal disclaimer was previously submitted with the prior response (rejected for non-compliant amendment on 10/20/2004) to overcome the rejection for obviousness-type double patenting over US Patent No. 6,251,691 over Mitchell et al. In conclusion,

all rejections have been addressed and overcome, and Applicant respectfully requests allowance.

Respectfully

Submitted,

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